RPM 2011-12 End-of-Year Report

(and Summer Institute 2012 Preparation)

**Due Date: July 11, 2012**

This year’s end-of-year RPM report is essentially an “end-of-grant” reflection report as well; it will provide important documentation for our summative report for the overall project and will also serve a secondary role as a useful preparation process for the Summer Institute. While clearly one person will need to take the lead on assembling and synthesizing what goes into the final submission, we hope that rather than something written entirely by a single person in isolation, the report will reflect contributions from the core college team involved in the RPM work, and if possible include perspectives even from faculty who may have only been marginally involved (and who may have questions or concerns about the work) in order to surface critical themes/ideas in the areas below.

**Section 1: Reflections on the Project Overall**

For each of the subsections A to D below, address both the major successes you’ve had in the work to date as well as any significant challenges you’ve encountered with respect to the particular aspect of the work being described.

1. **Summarize briefly the specific “structural” changes (e.g., changes in course content, number of courses offered, placement approaches, etc.) you implemented in your developmental math program (or in specific courses) as part of your college’s involvement in the Re-Thinking Precollege Math project.**

Math 98: Intermediate Algebra in Context was developed as an alternative to our previous intermediate algebra course (Math 99). Math 98 covers intermediate algebra topics with a focus on modeling real data sets and project-based assessment. Currently, Math 98 is a pre-requisite for Math 107, 146, and 138, but not Math 141 (therefore, Math 98 is not intended for STEM students).

Math 91 & 92 were developed as an alternative to the Math 81, 82, and 99 sequence offered at EvCC. The purpose of the Math 91 & 92 curriculum is to remove the overlap of topics in the Math 81, 82, and 99 sequence in order to shorten our students’ path to college-level mathematics. The first implementations of these courses began winter 2011. Beginning fall 2012, the Math 91 & 92 sequence replaces the Math 81, 82, and 99 sequence (Math 81 & 82 will be removed from the college catalog fall 2012) as the main algebra pathway through developmental mathematics.

The Math Learning Center (MLC) has seen a couple different changes throughout RPM. The MLC houses many different self-paced courses. These range from arithmetic (Math 70) to professional technical math courses. In fall 2011, Math 70 was redesigned. The largest piece of this redesign was introducing the use of computer-aided learning. Replacing the Math 70 textbook with MyMathLab software has provided our students three important changes: 1) Students now have access to a plethora of embedded resources including an interactive textbook, animated examples, and video lectures, 2) Students are able to quickly move past topics they already understand with diagnostic tests (which personalize their homework sets), and 3) Students are now able to seamlessly complete two courses (Math 70 & 80) in one quarter if they progress fast enough through the curriculum.

Beginning fall 2012, Math 79 (a new course, based off the CMATH courses at TCC) will replace Math 70 in the MLC. Math 79: Self-Paced Arithmetic and Algebra is a self-paced review of arithmetic and algebra concepts in a computer-mediated lab setting (using ALEKS software). In Math 79, students have the opportunity to gain the pre-requisite knowledge and skills for MATH 80, 91, 92, or 98. Upon demonstrating this knowledge, students are directly placed into either MATH 80, 91, 92, or 98 without the need to retake a placement test. Topics concerning anxiety, study skills, and math course advising are also covered. The goal of Math 79 is to offer students an opportunity to move as quickly as possible through developmental mathematics. ALEKS has two important features that allow students to quickly review arithmetic and algebra topics. First, ALEKS begins each student at a point in the curriculum that matches the student’s current understandings (via the initial assessment test). Second, ALEKS offers students the curriculum in a non-linear manner. Thus, students have several different topic areas to work through at any one time. If a student is struggling with a certain concept, they are not kept from working on different concepts (as is the case with most linearly progressing curricula).

Along with the implementation of Math 79, an articulation agreement has been made between the ABE department and the Math department. Students completing HSC 014, an arithmetic course within the ABE department, are now allowed to enroll in Math 80 (Pre-Algebra) without re-taking the placement test. The math department has agreed to advise students, who place into arithmetic, but are wary of a self-paced, computer-aided learning environment (as offered in Math 79), into HSC 014. Also, the math department has also agreed to accept certain scores on the GED exam as placement into the developmental sequence. These changes are intended to provide students completing ABE courses an obvious path into the developmental sequence.

The Alternative Placement Model, based on Green River CC’s model, was developed by Kevin Bolan and implemented fall 2011. This placement model allows students to use their high school transcripts (from local high schools) to place into math courses at EvCC. This model provides students an alternative to the score they receive on their COMPASS placement test and often places them higher in the math sequence than their COMPASS placement. This has allowed advisors on our campus to quickly and efficiently advise students unhappy with their COMPASS placement. Assessment of this placement model is ongoing, though the initial feedback we have received regarding this model has been positive.

1. **Reflect on the role that your institutional and departmental context (e.g., leadership issues, department-wide policies and decision-making, use of and support for part-time faculty, where the precollege math program is housed, whether the college administration is visibly and effectively supportive of innovations in pre-college programs, etc.) played in shaping the work you did in RPM and influencing the progress you’ve made in your project. In what ways have you specifically taken these contextual factors into consideration in addressing your work in the RPM project?**

When the RPM project began, our core team consisted of two tenured math faculty members, four tenure-track faculty, and an associate faculty member. Historically, curriculum change within the math department came slow. Our department consisted of many talented lecturers (many of whom were/are highly respected by students and fellow faculty) who did not regularly participate in professional development opportunities. The decision-making process of the department, especially on important issues, was not well-defined, which often stalled important, but difficult conversations. Associate faculty did not regularly attend department meetings nor were included in departmental decisions.

Our VP of Instruction, Sandra Fowler-Hill, and division dean, Al Friedman, have been consistently and visibly supportive of the innovations developed through the RPM project. Through the work of the pre-college workgroup (a group of faculty, staff, and administrators formed and led by Sandra Fowler-Hill) our department has been supported in our curriculum changes and newly created advising issues, from many different areas of the college.

At first, given the social dynamics within the department, innovations developed through the RPM project were slow to be implemented. The difficult conversations that were necessary to implement these changes did not come easy nor end quickly. To many within the department, the proposed curriculum changes posed a threat to the rigor and quality of the established curriculum. Through many of these difficult conversations, support from the administration, and pilots of the new curricula, the department faculty developed a better understanding for each other and improved the departmental decision-making process. Many dynamics within the department changed as experiences and data began to support the courses piloted through the RPM project. These changes had a significant, positive impact on the effectiveness of the grant work. Therefore, many of the changes in the departmental context, which enabled the substantial curriculum changes envisioned by the core team, were not influence by any specific strategy, but by the process itself.

Finally, many of the changes that have occurred to the curriculum and departmental context can be attributed to the work of our associate faculty. We now have 3-5 associate faculty members attending our department meetings on a regular basis and associate faculty are regularly asked to vote on important departmental issues. During RPM-related meetings, we have had high levels of participation by many members of our associate faculty. Each of the taskforces organized through the RPM project included associate faculty who significantly participated in the work of the taskforce. The RPM project has provided an opportunity for associate faculty to voice their opinions and be included in important decisions about curriculum. Also, the grant has allowed us to compensate associate faculty for the time and effort they have put towards the initiatives of the RPM project. Each of the above factors has significantly changed the role of the associate faculty within the department.

1. **The RPM project as a whole made an effort to promote and support faculty efforts to a) explore different concrete classroom practices and strategies around teaching and assessment and b) inquire collectively about the results of those efforts. To what extent and in what ways have any changes in instructional practices and collaborative inquiry occurred in the precollege math program at your college as part of your RPM project?**

Project-based assessment and collaborative learning were integrated into the structure of Math 98. This is the first math course at EvCC with such standards for assessment and pedagogy. In order to best meet these new criteria, a FIG of Math 98 instructors has met regularly (since the inception of the course) to discuss the development and assessment of projects, the development of group worthy activities, and to address advising issues. This has been our department’s most consistent, well-attended FIG. It seems that this FIG has thrived because of the challenge presented by teaching Math 98. The instructors of Math 98 don’t see the work of the Math 98 FIG as only a chance to enhance the course, but as a necessary support to the implementation of this new course.

Math and Munch was organized as a time for instructors in the department to openly talk about teaching and learning issues. At Math and Munch meetings, faculty eat together and informally discuss the daily topics. The topics covered in Math and Munch are chosen by the faculty and cover a wide breadth of teaching and learning issues. These meetings have been regularly attended by both full-time and associate faculty. Math and Munch has provided a space for faculty in the department to address important aspects of teaching and learning without complicating the conversation with departmental policy decisions (as is the case with department meetings). While faculty participation in Math and Munch meetings is likely to be sustained into the near future, the role and impact of Math and Munch are still in a state of flux (as these types of conversations have not historically occurred in such a regular, organized manner in the department).

Peg Balachowski led efforts and conversations in the department regarding Classroom Assessment Techniques (CATs). The conversations around CATs have been productive and informative. Many instructors in the department have shared versions of CATs they administer in the classes. Through Peg’s efforts, many faculty have had their first experiences with formal formative assessment. It is difficult to gauge whether the use of formative assessment has significantly increased throughout the department, but the fact that their use is now a topic of conversation and conceptually supported by a majority of the faculty provides optimism to the sustainability of their use within the department.

Tophe Anderson has led efforts to involve faculty in classroom exchanges. During the 2010-2011 academic year, Tophe and Rachel Kingsley co-chaired a Teaching and Learning Lab at EvCC which invited faculty from around the campus to participate in classroom exchanges. This lab was attended by math, ABE, and science faculty. While participation in classroom exchanges has not reached the level aspired by the RPM core team, the concept of classroom exchanges is now embedded into the department culture and faculty have regularly arranged exchanges to tackle difficult pedagogical issues.

1. **How, if at all, have any of the activities you’ve done in your precollege math program as part of the RPM project incorporated a focus on student attributes and perspectives as math learners?**

We have incorporated conversations and activities regarding student attributes into a few of our developmental courses. This work is not complete. We are continually piloting and analyzing new strategies in order to determine the best method of helping students develop the mindsets and skills needed to be successful in college-level mathematics. During fall 2011, a cohort of instructors (led by Peg Balachowski) embedded a student attributes curriculum into Math 80 (Pre-Algebra) courses. This embedded curriculum was based on SAMS work and included student portfolios as a summative assessment. Also, during winter 2012, Michael Nevins linked a Math 81 (Elementary Algebra) course with a two-credit math anxiety course (which is taught through the Human Development Department). The curriculum of the math anxiety course was also comprised of lessons developed through the SAMS work. The instructor’s experiences and the data collected (to analyze the student experience) from these implementations will continue to influence the future implementations of student attribute curricula. This work is seen as a priority to a few members of the department.

Finally, conversations and assignments concerning student attributes have been developed into the structure of Math 79. The learning outcomes for the course specifically include two statements about student attributes. The effectiveness of this work has yet to be analyzed, though the inclusion of student attributes in the learning outcomes of a math course is seen as a significant accomplishment by those who support this work.

**Section 2: Sustainability and Next Steps**

1. **What aspects of the changes in your precollege math program initiated and/or support by the work of the RPM project do you foresee being sustained at your college beyond December 2012 without the infusion of any new external grant support?**

First and foremost, the significant changes that have occurred in our department context (as described above) are very likely to be sustained because of the nature of such change. The experiences that faculty have had with CATs, FIGs, and classroom exchanges have undoubtedly affected the social schema of what it means to be an active, effective faculty member of the department. The curriculum changes initiated through the RPM project may not be permanent, but the existence of innovative pedagogy, alternative assessment, and evidence-based curriculum assessment, which are products of our curriculum development, are likely to be sustained.

1. **If new grant resources (comparable to the RPM level of funding at a minimum) were available, what specific activities would you want to extend or initiate to continue your efforts to address improving student progress and success in your precollege math program?**

The RPM project has allowed us to make substantial changes to our curriculum and department context. As described above, many of these changes are likely to be sustained because of the nature of the changes. Though, many of the culture shifts within the department are dynamic and their sustainability is not guaranteed without continued support. There is a sense within the department of a need to fully support the pedagogical shifts and advising issues created by our curriculum changes in order to ensure the work started by the RPM project continues to be maximally effective. Such support may include funding of future participation in FIGs and funding for faculty to continue important work concerning placement and advising issues.

The ability to compensate associate faculty for their participation has had a significant impact on many of the RPM initiatives and the role of associate faculty in the department. Continued funding for associate faculty participation would support the shift of their role within our department and solidify their involvement in decision-making, professional development opportunities, and curriculum development.

The implementations and analysis of student attribute curricula in developmental math courses are ongoing. Funding to support the development, pilots, and analysis of these curricula would greatly support these efforts.